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EXAMINER	
BELL, MELTIN	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/043,515	GOLDWASSER ET AL.
	Examiner	Art Unit
	Meltin Bell	2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-83* is/are pending in the application.

4a) Of the above claim(s) *41,47-50 and 52* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40,42-46,51 and 53-73* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 June 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/4/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to application **10/043,515** filed 03/26/2001 as well as the Drawing Corrections and Amendment filed 6/4/04. Claims 1-83 filed by the applicant have been entered and examined. Claims 41, 47-50 and 52 are canceled. An action on the merits of claims 1-40, 42-46, 51 and 53-83 appears below.

Priority

Applicant's claim for domestic priority against application number 60/191,783 filed **3/24/00** under 35 U.S.C. 119(e) is acknowledged.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 39 and 71 stand rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claims (e.g. "experiment design", "experiment matrix", "matrix elements", "process conditions", "experimental results", "library of materials") raise a question as to whether the claims are directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under

35 U.S.C. 101. For example, if claim 1 was amended to recite a computer-implemented method and required performance of a result outside of a computer, it will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

Claim Rejections - 35 USC § 102

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 9-16, 24, 26-27, 29, 31-40, 42-45 and 51 are rejected under 35 U.S.C. 102(e) as being anticipated by *Nova et al* USPN 6,329,139 (Issued December 11, 2001, Filed August 11, 1997).

Regarding claim 1:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix,

the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

Regarding claim 2:

The rejection of claim 2 is the same as that for claim 1 as recited above since the stated limitation of the claim is set forth in the reference.

Regarding claim 3:

The rejection of claim 3 is the same as that for claim 2 as recited above since the stated limitation of the claim is set forth in the reference.

Regarding claim 9:

Nova et al teaches,

- in response to providing the experimental results, receiving a second user input including a second experiment design defining one or more additional experiments column 14, lines 6-13, "These instruments and...processed an assayed")

- preparing a second library of materials based on the second experiment design (column 14, lines 14-28, "A container is...bars are used")

- applying one or more process conditions specified in the second experiment design to the members of the second library of materials to transform at least one of the starting materials into a product and applying a second screening method to generate additional experimental results (column 14, lines 29-35, "Methods for electromagnetically...into the memory")

- providing the additional experimental results to the remote user (column 14, lines 36-46, "The, thus identified...group are provided")

Regarding claim 10:

The rejection of claim 10 is the same as that for claim 9 as recited above since the stated limitation of the claim is set forth in the reference.

Regarding claim 11:

Nova et al teaches,

- the second screening method and the first screening method are different (column 125, lines 16-64, "Anti-microbial assays and...different Salmonella strains")

Regarding claim 12:

Nova et al teaches,

- the computer-implemented experiment design tool includes an interactive user interface configured to enable the remote user to select materials from a list of materials in a remote material inventory (column 41, lines 11-41, "Matrices include any...syntheses or reactions"; column 172, lines 42-48, "Calibration files are...to the X-Y locations")

Regarding claim 13:

Nova et al teaches,

- the computer-implemented experiment design tool includes an interactive user interface configured to enable the user to select processing conditions from a list of processing conditions that can be implemented by a remote process control system (column 171, lines 39-67, "Host controller 12701...of the sorter")

Regarding claim 14:

Nova et al teaches,

- the computer-implemented experiment design tool includes an interactive user interface configured to enable the user to select high throughput screening methods from a list of screening methods that can be performed by one or more screening instruments available at a remote laboratory location (column 158, lines 66-67, "Find Compound. The...13804 for "Find"; column 159, lines 1-19, "Compound." The software...manual sorting system")

Regarding claim 15:

Nova et al teaches,

- the computer-implemented experiment design tool includes an interactive user interface configured to access one or more databases of available materials, process conditions and high throughput screening methods (column 158, lines 47-52, "d. User affirms placement...a another library")

Regarding claim 16:

Nova et al teaches,

- the first screening method is automatically defined based on one or more of the starting materials and process conditions (column 127, lines 21-40, "Mixtures nucleic acid...the hybridizing probe"; column 128, lines 1-19, "Also of interest ... the methods herein"; column 129, lines 5-20, "each oligomer is...the gene segment")

Regarding claim 24:

Nova et al teaches,

- the first experiment design includes information identifying one or more custom materials assigned to one or more matrix elements (column 9, lines 5-22, "The recording device...may be identified")

- receiving the custom materials from the remote user for use in preparing the library of materials (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

Regarding claim 26:

The rejection of claim 26 is the same as that for claim 1 as recited above since the stated limitation of the claim is set forth in the reference.

Regarding claim 27:

Nova et al teaches,

- the set of experiments is directed to the preparation of pharmaceutical products or intermediates (column 36, lines 38-41, "As used herein...enzymes and cofactors"; column 37, lines 21-29, "As used herein...esterified or etherified")

Regarding claim 29:

Nova et al teaches,

- the set of experiments is directed to the preparation of specialty chemicals (column 114, lines 61-67, "These plates are...established protocols avail-"; column 115, lines 1-29, "able for the...agents are known")

Regarding claim 31:

Nova et al teaches,

- the first experiment design defines a set of experiments directed to polymerization (column 14, lines 47-67, "Methods for tagging...example dipping the"; column 15, lines 1-3, "memory into the...of the memory")

Regarding claim 32:

The rejection of claim 31 is incorporated. Therefore, claim 32 is rejected under the same rationale as claim 31.

Regarding claim 33:

Nova et al teaches,

- the first experiment design defines a set of experiments directed to the preparation of electronic materials (column 57, lines 1-23, "If needed, segregation...from its environment")

Regarding claim 34:

Nova et al teaches,

- the experiment design defines a set of experiments directed to the preparation of composites or alloys (column 15, lines 37-46, "Compositions containing combinations ... memories are provided")

Regarding claim 35:

Nova et al teaches,

- the user receives the experimental results by accessing a results database through a remote computer-implemented interactive user interface (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure"; column 158, lines 47-52, "d. User affirms placement...a another library")

Regarding claim 36:

Nova et al teaches,

- in response to providing the experimental results, receiving a second user input from the remote user including a request to purchase a starting material or product corresponding to one of the elements of the experiment matrix (column 106, lines 66-

67, "Matrices with memories...a memory [or"; column 107, lines 1-58, "engraved or imprinted...matrices with memories")

Regarding claim 37:

Nova et al teaches,

- the experiment design tool is provided as a computer program to be executed by a computer system at the first location (column 19, lines 54-67, "a manual sorter ... encodable, writing to"; column 20, lines 1-3, "the memories, a...sorter is provided")

Regarding claim 38:

Nova et al teaches,

- the experiment design tool is provided as a computer program executed by a server process running at the second location (column 172, lines 1-10, "Sorter server 12706...within an application")

- the remote user access the experiment design tool using a client process running at the first location (column 172, lines 49-55, "the Simulator Utility...look up time")

Regarding claim 39:

Nova et al teaches,

- generating at a first location an experiment design defining a set of experiments, the experiment design including an experiment matrix having a plurality of elements, one or more starting materials assigned to the matrix elements, and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also defining a screening method to be applied to generate

experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- communicating the experiment design to a laboratory at a second location for execution, the second location being remote from the first location (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- receiving at the first location experimental results obtained at the laboratory by applying the process conditions to a library of materials corresponding to the experiment matrix to transform at least one of the starting materials into at least one product and applying the specified screening method (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems"; column 81, lines 43-60, "The structural changes... intermediate state"; column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample"; column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

Regarding claim 40:

Nova et al teaches,

- the experimental plan includes an estimate of time and/or cost to perform the set of experiments (column 120, lines 34-57, "A sample of...quantitated in duplicate"; column 45, lines 24-44, "Extrusion is one...the MICROTUBE microreactor")

Regarding claim 42:

Nova et al teaches,

- the starting materials are selected from a list of materials in a remote material inventory (column 41, lines 11-41, "Matrices include any...syntheses or reactions"; column 172, lines 42-48, "Calibration files are...to the X-Y locations")

Regarding claim 43:

Nova et al teaches,

- the processing conditions are selected from a list of processing conditions that can be implemented by a remote process control system (column 171, lines 39-67, "Host controller 12701...of the sorter")

Regarding claim 44:

Nova et al teaches,

- the screening method is selected from a list of screening methods that can be performed by one or more remote screening instruments (column 158, lines 66-67, "Find Compound. The...13804 for "Find"; column 159, lines 1-19, "Compound." The software...manual sorting system")

Regarding claim 45:

Nova et al teaches,

- the experimental plan includes an estimate of time and/or cost to perform the set of experiments (column 120, lines 34-57, "A sample of...quantitated in duplicate"; column 45, lines 24-44, "Extrusion is one...the MICROTUBE microreactor")

Regarding claim 51:

Nova et al teaches,

- provide to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receive at a second location a first user input including an experiment design generated by the experiment design tool, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- direct an automated synthesis instrument to prepare a library of materials corresponding to the experiment matrix, the library of materials having a plurality of members (column 92, lines 58-65, "A completely automated... microreactor carrier tray")

- direct an automated instrument to apply the process conditions to the members of the library of materials to transform at least one of the starting materials into at least one

product (column 92, lines 65-67, "The microreactor carrier...to each microre-"; column 93, lines 1-3, "actor carrier within...onto a shaker")

- direct an automated screening instrument to apply a first screening method defined by the first experiment design to generate experimental results (column 93, lines 3-9, "Alternatively, a shaker...compound is known")

- provide the experimental results to the remote user (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

Regarding new claims 53-58:

New claims 53-58 are rejected for being dependent on rejected independent claim 39 as well as for reasons given in this and in the prior office action(s).

Regarding new claims 59-70:

New claims 59-70 are rejected for being dependent on rejected independent claim 51 as well as for reasons given in this and in the prior office action(s).

Regarding new claim 71:

- generate at a first location an experiment design defining a set of experiments, the experiment design including an experiment matrix having a plurality of elements, one or more starting materials assigned to the matrix elements, and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with

memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- communicate the experiment design to a laboratory at a second location for execution, the second location being remote from the first location (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- receive at the first location experimental results obtained at the laboratory by applying the process conditions to a library of materials corresponding to the experiment matrix to transform at least one of the starting materials into at least one product and applying the specified screening method (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems"; column 81, lines 43-60, "The structural changes... intermediate state"; column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample"; column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

Regarding new claims 72-83:

New claims 72-83 are rejected for being dependent on rejected independent claim 71 as well as for reasons given in this and in the prior office action(s).

Claim Rejections - 35 USC § 103

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth

below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nova et al* in view of *Li* USPN 4,710,864 "Self-optimizing method and machine" (December 1, 1987) and in further view of *Falb* USPN 5,849,578 "Compositions and methods for the treatment and diagnosis of cardiovascular using RCHD528 as a target" (December 15, 1998).

Regarding claim 4:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix,

the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach an experiment matrix of at least 50 elements while *Li* teaches,

- the first experiment matrix includes at least 50 elements (Abstract, "The invention relates...is also disclosed"; column 3, lines 13-48, "This large number...tests were made")

- a variable amount of time before experimental results are available (column 6, lines 34-68, "The furnace is...a fixed number"; column 7, lines 1-25, "m of variables...always maintained optimal")

Falb teaches,

- the experimental results are provided to the user within 20 days from preparation of the first library (column 80, lines 26-62, "Hybridizations were performed...cells and macrophages")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Discovering and evaluating novel genes and gene products (*Falb*, column 6, lines 38-64, "The invention is...the known genes")
- Providing optimization status (*Li*, column 5, lines 50-56, "A further object...retesting and reoptimizing")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Li* and *Falb* for the purpose of discovering and evaluating novel genes and gene products as well as providing optimization status.

Regarding claim 5:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting

materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach an experiment matrix of at least 96 elements while *Li* teaches,

- the first experiment matrix includes at least 96 elements (Abstract, "The invention relates...is also disclosed"; column 3, lines 13-48, "This large number...tests were made")

- a variable amount of time before experimental results are available (column 6, lines 34-68, "The furnace is...a fixed number"; column 7, lines 1-25, "m of variables...always maintained optimal")

Falb teaches,

- the experimental results are provided to the user within 10 days from preparation of the first library (column 80, lines 26-62, "Hybridizations were performed...cells and macrophages")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Discovering and evaluating novel genes and gene products (*Falb*, column 6, lines 38-64; "The invention is...the known genes")
- Providing optimization status (*Li*, column 5, lines 50-56, "A further object...retesting and reoptimizing")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Li* and *Falb* for the purpose of discovering and evaluating novel genes and gene products as well as providing optimization status.

Regarding claim 6:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach an experiment matrix of at least 1000 elements while *Li* teaches,

- the first experiment matrix includes at least 96 elements (Abstract, "The invention relates...is also disclosed"; column 3, lines 13-48, "This large number...tests were made")

- a variable amount of time before experimental results are available (column 6, lines 34-68, "The furnace is...a fixed number"; column 7, lines 1-25, "m of variables...always maintained optimal")

Falb teaches,

- the experimental results are provided to the user within 50 days from preparation of the first library (column 80, lines 26-62, "Hybridizations were performed...cells and macrophages")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Discovering and evaluating novel genes and gene products (*Falb*, column 6, lines 38-64, "The invention is...the known genes")
- Providing optimization status (*Li*, column 5, lines 50-56, "A further object...retesting and reoptimizing")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Li* and *Falb* for the purpose of discovering and evaluating novel genes and gene products as well as providing optimization status.

Regarding claim 7:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment

design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach an experiment matrix of at least 1000 elements while *Li* teaches,

- the first experiment matrix includes more than 127 elements (Abstract, "The invention relates...is also disclosed"; column 3, lines 13-48, "This large number...tests were made")

- a variable amount of time before experimental results are available (column 6, lines 34-68, "The furnace is...a fixed number"; column 7, lines 1-25, "m of variables...always maintained optimal")

Falb teaches,

- the experimental results are provided to the user within 20 days from preparation of the first library (column 80, lines 26-62, "Hybridizations were performed...cells and macrophages")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Discovering and evaluating novel genes and gene products (*Falb*, column 6, lines 38-64, "The invention is...the known genes")
- Providing optimization status (*Li*, column 5, lines 50-56, "A further object...retesting and reoptimizing")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Li* and *Falb* for the purpose of discovering and evaluating novel genes and gene products as well as providing optimization status.

Regarding claim 8:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix,

the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach an experiment matrix of at least 1000 elements while *Li* teaches,

- the first experiment matrix includes more than 127 elements (Abstract, "The invention relates...is also disclosed"; column 3, lines 13-48, "This large number...tests were made")

- a variable amount of time before experimental results are available (column 6, lines 34-68, "The furnace is...a fixed number"; column 7, lines 1-25, "m of variables...always maintained optimal")

Falb teaches,

- the experimental results are provided to the user within 10 days from preparation of the first library (column 80, lines 26-62, "Hybridizations were performed...cells and macrophages")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Discovering and evaluating novel genes and gene products (*Falb*, column 6, lines 38-64, "The invention is...the known genes")
- Providing optimization status (*Li*, column 5, lines 50-56, "A further object...retesting and reoptimizing")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Li* and *Falb* for the purpose of discovering and evaluating novel genes and gene products as well as providing optimization status.

Claims 22-23 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nova et al* in view of *Lennon et al* "Using a Distributed Mini-Computer Network to Automate a Biochemical Laboratory" (March 1976).

Regarding claim 22:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the

experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach experiment execution requests submitted over a network while *Lennon et al* teaches,

- the computer-implemented experiment design tool is configured to enable the remote user to generate an experiment request for execution of the set of experiments defined by the first experiment design for submission over a computer network, the experiment request including electronic data embodying the first experiment design (page 159, 'THE LABORATORY CONTROL SYSTEM' section, paragraphs 1-2, "The realization of...approach highly effective"; page 160, paragraphs 1-3, "A sequential process...a data-base manager")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Effective instrument scheduling and accurate record keeping (*Lennon et al*, page 156, 'BACKGROUND' section, "The determination of...of these procedures")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Lennon et al* for the purpose of scheduling instruments effectively.

Regarding claim 23:

The rejection of claim 23 is similar to that for claim 22 as recited above since the stated limitations of the claim are set forth in the references. Claim 23's limitations difference is taught in *Lennon et al:*

- the first experiment design is received from the remote user over a computer network (page 160, 'NETWORK COMMUNICATION SOFTWARE' section, paragraphs 1-3, "We have three...general interprocess communications")

Regarding claim 46:

Nova et al teaches,

- generating at a first location an experiment design defining a set of experiments, the experiment design including an experiment matrix having a plurality of elements, one or more starting materials assigned to the matrix elements, and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with

memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- communicating the experiment design to a laboratory at a second location for execution, the second location being remote from the first location (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- receiving at the first location experimental results obtained at the laboratory by applying the process conditions to a library of materials corresponding to the experiment matrix to transform at least one of the starting materials into at least one product and applying the specified screening method (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems"; column 81, lines 43-60, "The structural changes... intermediate state"; column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample"; column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach experiment execution requests submitted over a network while *Lennon et al* teaches,

- the experiment design tool is communicated to the remote laboratory over a computer network (page 160, 'NETWORK COMMUNICATION SOFTWARE' section, paragraphs 1-3, "We have three...general interprocess communications")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Effective instrument scheduling and accurate record keeping (*Lennon et al*, page 156, 'BACKGROUND' section, "The determination of...of these procedures")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Lennon et al* for the purpose of scheduling instruments effectively.

Claim 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nova et al* in view of *Allen et al* USPN 5,969,121 "Stable biocatalysts for ester hydrolysis" (October 19, 1999).

Regarding claim 25:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

However, *Nova et al* doesn't explicitly teach chemicatalysis or biocatalysis while *Allen et al* teaches,

- the first experiment design defines a set of experiments directed to chemicatalysis or biocatalysis (column 10, lines 4-13, "The instant invention...isolated enzyme preparations")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Adding stability and functionality (*Allen et al*, column 10, lines 14-31, "The results of...slightly below neutral")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Allen et al* for the purpose of adding stability and functionality.

Regarding claim 28:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements,

each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

- the first experiment design defines a set of experiments directed to optimization of a chemical synthetic process (Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems")

However, *Nova et al* doesn't explicitly teach the preparation of fine chemicals while *Allen et al* teaches,

- the set of experiments is directed to the preparation of fine chemicals (column 4, lines 57-67, "the instant disclosure...fits the structural"; column 5, lines 1-7, "parameters of the...limited in solvent")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Adding stability and functionality (*Allen et al*, column 10, lines 14-31, "The results of...slightly below neutral")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Allen et al* for the purpose of adding stability and functionality.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nova et al* in view of *Chen et al* USPN 5,569,799 "Process for the production of chlorinated hydrocarbons and alkenes" (October 29, 1996).

Regarding claim 30:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment

design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

- the first experiment design defines a set of experiments directed to optimization of a chemical synthetic process (Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems")

However, *Nova et al* doesn't explicitly teach the preparation of commodity chemicals while *Chen et al* teaches,

- the set of experiments is directed to the preparation of commodity chemicals (column 1, lines 43-58, "Chloroethene, known as...ethylene as feedstock")

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Recovering of process materials (*Chen et al*, column 3, lines 28-43, "This new process...make-up chlorine source")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Chen et al* for the purpose of recovering process materials.

Claim 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nova et al* U.S. Patent Number 6,329,139 (Issued December 11, 2001, Filed August 11, 1997) in view of *Guinta et al* USPN 5,737,494 "Assessment methods and apparatus for an organizational process or system" (April 7, 1998).

Regarding claim 17:

Nova et al teaches,

- providing to a remote user at a first location a computer-implemented experiment design tool for generating an experiment design defining a set of experiments, the experiment design including electronic data defining an experiment matrix having a plurality of matrix elements, one or more starting materials assigned to the matrix

elements and one or more process conditions to be applied to the matrix elements, each of a plurality of matrix elements being defined by a unique combination of starting materials and/or process conditions, the experiment design also including electronic data defining a screening method to be applied to generate experimental results (Fig. 35; Abstract, "Automated drug discovery...matrices with memories"; column 2, lines 3-31, "The present invention...biological assay systems"; column 186, lines 33-43, "A portion of...experiments was 50%")

- receiving at a second location a first user input including a first experiment design generated by the experiment design tool, the first experiment design defining a first experiment matrix having a first plurality of matrix elements, a first set of one or more starting materials, and a first set of one or more process conditions, the first experiment design also defining a first screening method, the second location being remote from the first location (column 5, lines 31-40, "By virtue of...with identifying information "; column 95, lines 38-48, "Manual sorting...the transferring procedure")

- preparing a first library of materials at the second location according to the first experiment design, the first library of materials corresponding to the experiment matrix, the first library of materials having a plurality of members corresponding to elements of the first experiment matrix (column 2, lines 51-67, "The provision and ...J. Medicinal"; column 3, lines 1-37, "Chemistry 37:1233-12511... vitro assay systems")

- applying the first set of process conditions to the members of the first library of materials at the second location to transform at least one of the starting materials into at

least one product (column 81, lines 43-60, "The structural changes... intermediate state")

- applying the first screening method to the members of the first library of materials at the second location to generate experimental results (column 13, lines 47-67, "Containers, such as...particular protocol, whereby"; column 14, lines 1-5, "a sample may...of the sample")

- providing electronic data describing the experimental results to the remote user at the first location (column 143, lines 44-67, "Once rectified, the...the sample or"; column 144, lines 1-2, "specimen contained in...and identification number")

- the first screening method is a high throughput screening method (column 2, lines 3-31, "The present invention...biological assay systems")

- evaluating the first experiment design before preparing the first library of materials to generate an experimental plan including electronic data describing a proposed execution of the set of experiments (column 21, lines 18-63, "an improvement of...with each compound"; column 95, lines 66-67, "This manual system...MICROTUBE™, MICROBEAD™, or"; column 96, lines 1-9, "MICROBALL™ microreactors, read/write")

- providing the experimental plan to the remote user (column 21, lines 5-17, "Also provided are...as provided herein")

However, *Nova et al* doesn't explicitly teach receiving an input from the user in response to the experimental plan, wherein the preparing the library of materials, the applying the process conditions, the applying the screening method, and the providing

the experimental results are only performed when the user approves of the experimental plan while *Guinta et al* teaches,

- the user approves of the experimental plan (column 12, lines 54-63, "4.2 Systems ensure nonconforming ... the Control Plan"; Note: The user is the customer.)

Motivation - The portions of the claimed method would have been highly desirable features in this art for

- Focusing audits (*Guinta et al*, Abstract, "Method and apparatus ... focused audits and/or inspections")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Nova et al* as taught by *Guinta et al* for the purpose of focusing audits.

Regarding claim 18:

The rejection of claim 18 is similar to that for claim 17 as recited above since the stated limitations of the claim are set forth in the references. Claim 18's limitations difference is taught in *Nova et al*:

- evaluating the first experiment design includes generating an estimate of time and/or cost to perform the set of experiments defined by the first experiment design (column 120, lines 34-57, "A sample of...quantitated in duplicate"; column 45, lines 24-44, "Extrusion is one...the MICROTUBE microreactor")

Regarding claim 19:

The rejection of claim 19 is similar to that for claim 17 as recited above since the stated limitations of the claim are set forth in the references. Claim 19's limitations difference is taught in *Nova et al*:

- evaluating the first experiment design includes determining whether the design conforms to a set of experiment parameters, and, if not, communicating to the remote user that one or more experiments defined by the experiment design cannot be executed (column 6, lines 31-36, "In certain embodiments...in the memory"; column 95, lines 66-67, "This manual system...MICROTUBE™, MICROBEAD™, or"; column 96, lines 1-9, "MICROBALL™ microreactors, read/write")

Regarding claim 20:

The rejection of claim 20 is similar to that for claim 19 as recited above since the stated limitations of the claim are set forth in the references. Claim 20's limitations difference is taught in *Nova et al*:

- determining whether the design conforms to the set of experiment parameters includes determining whether the assigned starting materials specified in the first experiment design are present in an inventory of materials (column 8, lines 33-53, "The data storage...one matrix particle")

Regarding claim 21:

The rejection of claim 21 is similar to that for claim 19 as recited above since the stated limitations of the claim are set forth in the references. Claim 21's limitations difference is taught in *Nova et al*:

- evaluating the first experiment design includes determining whether the assigned starting materials have chemical or physical properties falling within a predetermined set of chemical or physical properties (column 8, lines 33-53, "The data storage...one matrix particle")

RESPONSE TO APPLICANTS' AMENDMENT REMARKS

Applicant(s) argue(s) that no new matter has been added in the amendment of claims 1, 4-8, 17, 22, 39-40, 42-46 and 51 (Amendment REMARKS page 22, paragraph 1).

Information Disclosure Statement (IDS)

Applicant(s) argue(s) that the Supplemental IDS has the correct URL for the Umpire Screen jpeg file (Amendment REMARKS page 22, paragraph 2). Applicant's arguments have been fully considered and are persuasive. The objection is withdrawn.

Drawings

Applicant(s) argue(s) that the corrected Figs. 1, 2 and 4 address all grounds for objection (Amendment REMARKS page 22, paragraph 3). Applicant's arguments have been fully considered. The corrections to Figs. 1 and 4 remove the grounds for objection. However, Fig. 2, item 210 and its link should terminate closer to the inventory subsystem text in the Figure.

Specification

Applicant(s) argue(s) that the amended specification (page 11, line 7, page 15, line 11, page 18, line 18 and page 20, line 33) offers a proper reflection of the invention (Amendment REMARKS page 22, paragraph 4 and page 23, paragraph 1). Applicant's arguments have been fully considered. The amendments remove the grounds for objection.

Claim Rejections - 35 USC § 101

Applicant(s) argue(s) that the specification explains in more detail the usefulness of claim 1's method to a user scientist (Amendment REMARKS page 24, paragraph 3) and that the implementation of claim 39's method in a computer is clearly directed to statutory subject matter under Section 101 (Amendment REMARKS page 25, paragraph 2). Applicant's argument(s) have been fully considered, but they are not persuasive. In addition to the above 35 USC 101 rejection of claims 1, 39 and new claim 71, claim 1 does not recite a computer-implemented method while claims 1 and 39 do not present the result to a user via an interface, such as a display.

Claim Rejections - 35 USC § 102

Applicant(s) argue(s) that Nova USPN 6,329,139 fails to disclose claim 1's generation and execution of experiment designs, and design and execution of experiments at different locations (Amendment REMARKS page 26, paragraph 2).

Applicant's argument(s) have been fully considered, but they are not persuasive. Column 2, lines 3-31 of Nova is cited for explicitly and inherently disclosing the subject matter set forth in the claims by the applicants.

Applicant(s) argue(s) that Nova fails to anticipate amended claim 17's evaluating an experiment design to generate an experimental plan, the provision of such an experimental plan to the user, or the conditioning of the execution of the experiment upon the approval of such an experimental plan by the user (Amendment REMARKS page 28, paragraph 4). Applicant's arguments have been fully considered, but are moot in view of the above new grounds of rejection necessitated by the amendment. Guinta USPN 5,737,494 column 12, lines 54-63 is cited for explicitly and inherently disclosing the subject matter set forth in the claims by the applicant's. Furthermore, Guinta's Abstract provides focusing audits as the purpose and motivation for combining the reference with Nova.

Applicant(s) argue(s) that claims 39 and 51 are allowable for the same reasons as claim 1 (Amendment REMARKS page 29, paragraphs 1-4). Applicant's argument(s) have been fully considered, but they are not persuasive as given in the above rejections of claims 1, 39, 51 and 71.

Claim Rejections - 35 USC § 103

Applicant(s) argue(s) that Nova fails to disclose the provision of experiment design software to a user at a first location and the receipt and execution at a second location of an experiment design generated using such software (Amendment

REMARKS page 30, paragraph 4) and that no prima facie showing of obviousness has been established in the Nova in view of Chen et al USPN 5,569,799 in view of Li USPN 4,710,864 in view of Allen USPN 5,969,121 in view of Falb USPN 5,849,578 and in further view of Lennon "Using a distributed mini-computer network to automate a biochemical laboratory" rejections of claims a) 4-8, b) 22-23, c) 25, 28, d) 30 and e) 46 (Amendment REMARKS page 30, paragraph 4, page 31, paragraph 5, page 32, paragraph 3, page 33, paragraphs 1 and 6, respectively).

Applicant's argument(s) have been fully considered, but they are not persuasive. Column 2, lines 3-31 of Nova, the Abstract, column 3, lines 13-48, column 6, lines 34-68 and column 7, lines 1-25 of Li, column 80, lines 26-62 of Falb, page 159, 'THE LABORATORY CONTROL SYSTEM' section, paragraphs 1-2 of Lennon, column 10, lines 4-13 of Allen and column 1, lines 43-58 of Chen are cited for explicitly and inherently disclosing the subject matter set forth in the claims by the applicants. Furthermore, the purpose and motivation for combining the references includes discovering and evaluating novel genes and gene products (Falb, column 6, lines 38-64), providing optimization status (Li, column 5, lines 50-56), scheduling instruments effectively (Lennon, page 156, 'BACKGROUND' section), adding stability and functionality (Allen, column 10, lines 14-31) and recovering process materials (Chen, column 1, lines 43-58).

As set forth above with regards to Nova, Chen, Allen, Li, Falb and Lennon, the items listed explicitly and inherently teach each element of the applicants' claimed limitations. Applicants have not set forth any distinction or offered any dispute between the claims

of the subject application, Nova's Automated sorting system for matrices with memory, Chen's Process for the production of chlorinated hydrocarbons and alkenes, Allen's Stable biocatalysts for ester hydrolysis, Falb's Compositions and methods for the treatment and diagnosis of cardiovascular using RCHD528 as a target and Li's, Lennon's Using a Distributed Mini-Computer Network to Automate a Biochemical Laboratory.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Office should be directed to Meltin Bell whose telephone number is 571-272-3680. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:30 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anthony Knight, can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MB

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